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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,994	08/09/2005	Patric Heide	14219-090US1 P2003, 0002	7992
26161 7590 12/27/2007 FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER CHEN, SHELLEY	
			ART UNIT 3661	PAPER NUMBER
			MAIL DATE 12/27/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/541,994	Applicant(s) HEIDE, PATRIC	
	Examiner Shelley Chen	Art Unit 3661	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 November 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 8-20 and 23-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 21, 22 and 26-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. The applicant has amended claim 1 such that the at least one passive circuit component of the mixer or the resonant circuit of the oscillator is at least partially integrated in one or more of the metallized internal surfaces of the substrate.

The amended claims are addressed in the rejection below.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1-7, 21-22, and 26-28 rejected** under 35 U.S.C. 103(a) as being unpatentable over **Cadotte et al.** (U.S. Patent # 6,091,355) in view of **Hyltin** (U.S. Patent # 3,454,945).

**Regarding claims 1, 3, and 26-28**, Cadotte discloses a radar transceiver comprising all of the limitations of the instant invention, including the claimed oscillator (figures 4-5, column 6 line 29- column 7 line 6, etc.), the claimed mixer (figure 8, column 8 lines 40-47, etc.), and the claimed substrate (figure 1, claims 1-2, column 5 lines 14-51, etc.), except that the circuit components are at least partially integrated in one or more of the metallized external surfaces of the substrate (figure 1, column 5 lines 30-38, claims 1-2, etc). Cadotte further discloses the use of plated through vias integrated into the metallized internal surfaces to connect components of the top and bottom metallized surfaces (figures 1 and 3, column 5 lines 40-52, column 6 lines 1-17 and 50-64, claim 3, etc), but fails to disclose the integration of the circuit components themselves into the metallized internal surfaces.

In the same field of endeavor, Hyltin discloses a radar transceiver wherein a passive circuit component of the mixer (figures 5-7, column 8 lines 19-52; and figure 12, column 11 lines 39-63) and the resonant circuit of the oscillator (figure 14, column 2 lines 64-70, column 12 lines 28-33 and 43-75) are at least partially integrated in the metallized internal surfaces of the substrate (see citations in this paragraph). It would have been obvious to modify Cadotte to do so, as taught by Hyltin, in order to achieve a small and lightweight radar apparatus (column 1 lines 45-54).

**Regarding claim 2**, it is well known in the art to choose a voltage-controlled oscillator for an oscillator; it would have been obvious to do so in order to enable simple and adjustable control of the oscillation frequency, without any new or unexpected results.

**Regarding claim 4**, Hyltin further discloses the use of a varactor diode for frequency tuning (figures 4 and 13-14: 160, column 2 lines 64-70, column 12 lines 28-33). It would have been obvious to modify Cadotte do so, as taught by Hyltin and commonly known in the art, in order to enable simple and adjustable control of the tuned frequency, without any new or unexpected results.

**Regarding claim 5**, Hyltin further discloses the use of a hybrid ring for a mixer (figure 5, column 8 lines 19-50). It would have been obvious to modify Cadotte do so, as taught by Hyltin and commonly known in the art, in order to implement a relatively simple mixer on an integrated circuit, without any new or unexpected results.

**Regarding claims 6-7**, it is well known in the art to use a frequency divider at the output of an oscillator; it would have been obvious to do so in order to downconvert the oscillator output into an appropriate frequency range for transmission, reception, or input into any circuit component with a limited operating range of frequencies, without any new or unexpected results.

**Regarding claim 21**, Hyltin discloses frequency modulating of the radar signal via frequency/amplitude keying of an oscillator, an amplifier, or a very high frequency switch (figure 4, column 5 lines 50-59, figure 25 and corresponding text). It would have been obvious to modify Cadotte to do so, as taught by Hyltin and commonly known in the art, in order to benefit from pulse compression (column 5 lines 50-59), without new or unexpected results.

**Regarding claim 22**, it is well known in the art to amplitude modulate a radar signal via frequency/amplitude keying of an oscillator, an amplifier, or a very high frequency switch; it would have been obvious to do so in order to enable continuous transmission, reception, and analysis of the radar signals, without any new or unexpected results.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shelley Chen whose telephone number is (571) 270-1330. The examiner can normally be reached Mondays through Fridays, between 10:00 AM and 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached at (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Shelley Chen,



Patent Examiner

Art Unit 3661

December 10, 2007



THOMAS BLACK  
SUPERVISORY PATENT EXAMINER